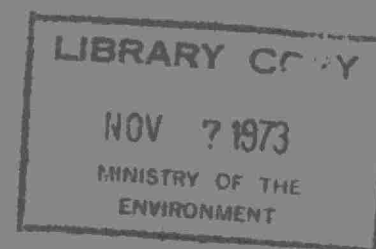


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OPERATING SUMMARY



CORNWALL

TD227  
C67  
W38  
1972  
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Ontario

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Ministry of the  
Environment

135 St. Clair Avenue West  
Toronto 195, Ontario

We are pleased to present you with the 1972 operating summary for the water pollution control plant serving your community.

This summary contains data on the performance of the plant as well as relevant financial information. Of particular interest is the review of the year's activities in which significant items of these data are discussed in some detail by the operations engineer and his staff who, by their day-to-day involvement with the operation, are thoroughly familiar with the plant.

We appreciate your continuing interest in protecting the environment through the efficient operation of this wastewater treatment facility.

D.S. Caverly,  
Assistant Deputy Minister.

D.A. McTavish, P. Eng.,  
Director,  
Project Operations Branch.

MINISTRY OF THE ENVIRONMENT

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DEPUTY MINISTER  
E. Biggs

ASSISTANT DEPUTY MINISTER  
D.S. Caverly

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ASSISTANT DIRECTOR  
C.W. Perry

ACTING REGIONAL SUPERVISOR  
B.W. Hansler

OPERATIONS ENGINEER  
J. Dick

135 St. Clair Avenue West  
Toronto 195

CORNWALL

ST. LAWRENCE RIVER

WATER POLLUTION CONTROL CENTRE NO. 1

MINISTRY OF THE ENVIRONMENT

1972 ANNUAL OPERATING SUMMARY

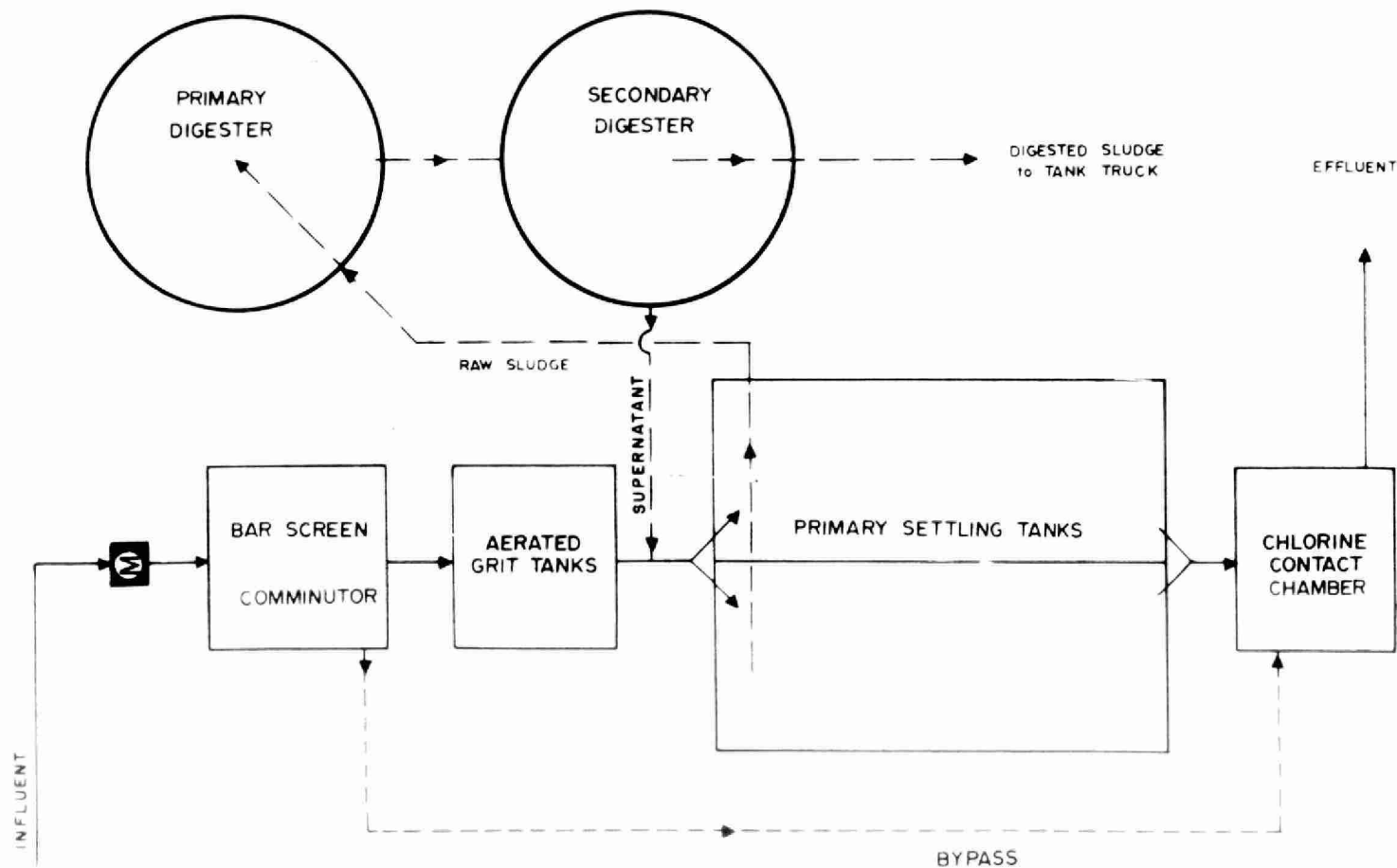


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ST. LAWRENCE RIVER  
WATER POLLUTION CONTROL CENTRE No.1  
(CORNWALL)



## DESIGN DATA

PROJECT NO.	1-0001-66	<u>PRIMARY TREATMENT</u>	<u>CHLORINATION</u>
DESIGN FLOW	8.25 mgd	<u>Comminution</u>	<u>Chlorinator</u>
DESIGN POPULATION	66,000	Type: Barminutor Size: Two Type "C"	Type: W & T Size: One 2,000 lb/day with evaporator
		<u>Screening</u> (Bypass channel)	<u>Chlorine Contact Chamber</u>
		Size: 2" spaces	Size: One 48' 7" x 26' 11" x 10' 6" (85,800 gal)
		<u>Grit Removal</u>	Retention: 15 min
		Type: Aerated; grit removed by clamshell bucket	<u>OUTFALL</u>
		Size: Two 38' 6" x 15' 10" x 13' 5" swd (98,500 gal)	- to St. Lawrence River
		Retention: 17 min	<u>SLUDGE HANDLING</u>
		<u>Air Supply</u>	<u>Digestion System</u> - Two-stage
		Type: Hoffman	Primary Digester -
		Size: Two 1,100 scfm (also for channel aeration)	Type: Perth (gas mixed) with fixed concrete cover
			Size: One 65' dia x 24' swd (82,500 cu ft or 0.515 mil gal)
			Loading: 2.88 lb/cu ft/mo
		<u>Primary Sedimentation</u>	Secondary Digester -
		Type: Jeffrey	Size: One 65' dia x 24' swd (82,500 cu ft or 0.515 mil gal)
		Size: Two 143' x 48' x 12' (1.245 mil gal)	Total Loading: 1.44 lb/cu ft/mo
		Retention: 3 hours	<u>Disposal</u>
		Loading: Surface, 600 gal/ft <sup>2</sup> /day	- by tank truck
		Weir, 14300 gal/ft/day	

# '72 Review

## GENERAL

The Cornwall water pollution control plant treated a total of 3601 million gallons of sewage in 1972. This represents an average daily flow of 9.8 million gallons per day. This is slightly over the design flow of the plant which is 8.5 million imperial gallons per day.

During 1972 two additional trunk sewers were completed, contract #15, the central western sanitary trunk sewer and contract #19, the north western sanitary trunk sewer. Construction was also started on the eastern trunk sanitary sewer which is to serve the eastern industrial part of the City of Cornwall.

The main trunk sewer from Brookdale Avenue to the sewage treatment plant pumping station was inspected during the year. It was found in a satisfactory condition. It also appeared that some of the sand build-up near the main pumping station had considerably decreased from the previous year.

The outfall pipe into the St. Lawrence River was inspected by a diver. A new buoy was also positioned at the end of the outfall pipe.

The sewer between the sewage treatment plant and the main pumping station was inspected in the fall of 1972, and this revealed that many joints had separated and were allowing a substantial flow of water into the sewer. These joints were sealed with Sika quick set.

Because of the problems associated with water intakes downstream from the water pollution control plant, the Sanitary Engineering Branch of the Ministry requested that year round chlorination be practiced at the water pollution control plant. This was initiated in 1972 and naturally reflected in higher operating costs through the purchase of additional chlorine.



After four years of operating the treatment facilities in Cornwall, two of the main raw sewage pumps were dismantled and inspected. Only a normal amount of wear on the wear rings and shaft sleeves was evident. These were replaced with new rings and a new sleeve. The pump housing and impeller were in extremely good condition.

During 1972 the plant staff showed their ingenuity by the construction of two automatic proportional samplers that were fabricated at the treatment plant. These samplers eliminated the hourly labour that was required to gather samples in small amounts which were incorporated in a larger composite sample.

Problems with Industrial waste were encountered during the past year. One industry was installing new equipment to rectify the problem. The other industry however, did not appear to make efforts that would eliminate Perlite discharges to the sewer. The Perlite material is a very abrasive material that is inorganic and very buoyant. It created additional operating costs because of its manual removal from the primary tank and additional maintenance costs because of the wear and tear that it caused to the equipment pumping this material. It is possible that a premature digester clean out will have to be made because of this waste.

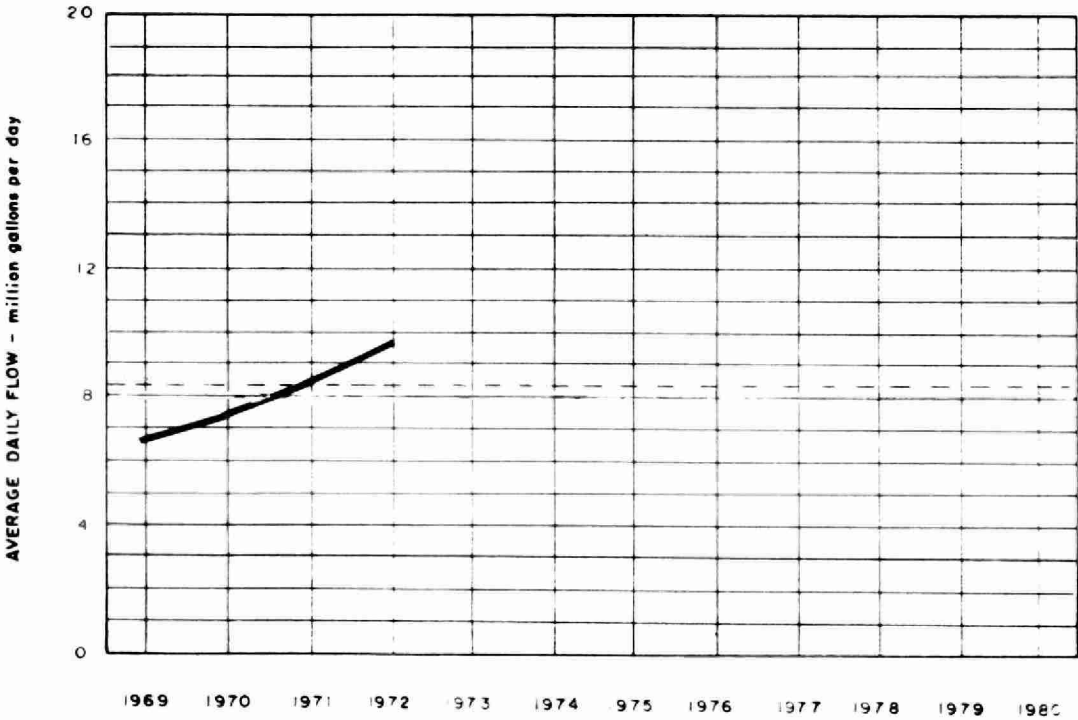
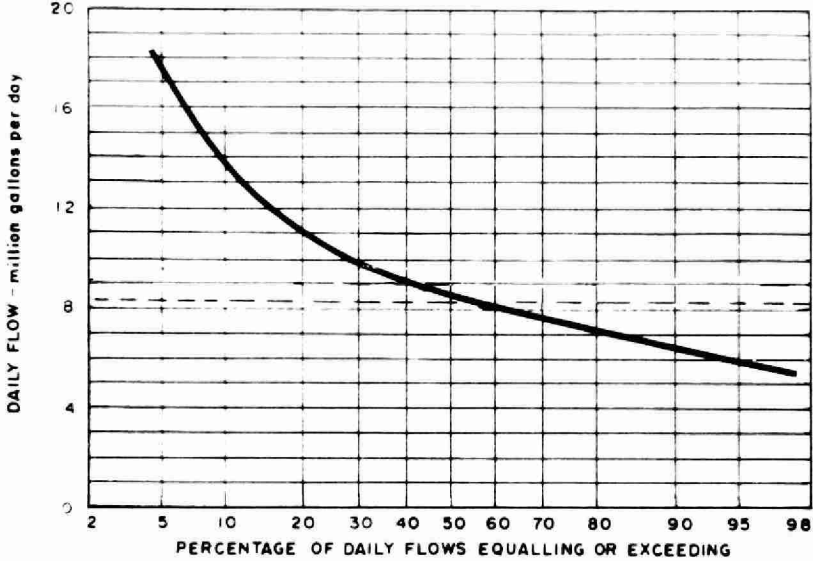
The digested sludge hauling contract expired in 1972. In order for the sludge contractor to be able to provide a reasonable unit cost for the disposal of this material the contractor requested a 5-year contract. It was his intent to purchase property for the disposal of this material. Considerable time and effort were spent with the Township of Charlottenburg discussing the use of this site for sludge disposal. After the Environmental Hearing Board heard the objections to this site from local residents, the site was turned down. Without any suitable sites available, temporary permission was granted to dispose sludge on the City of Cornwall's land fill site. Efforts were continued to find a satisfactory alternate site.

### SUMMARY

Because of the fact that there is a very active program in the City of Cornwall to provide additional trunk sewer facilities, it is recommended that expansion of the sewage treatment plant be considered to keep up with the growth in the Cornwall area.

PROCESS DATA

# FLOWS

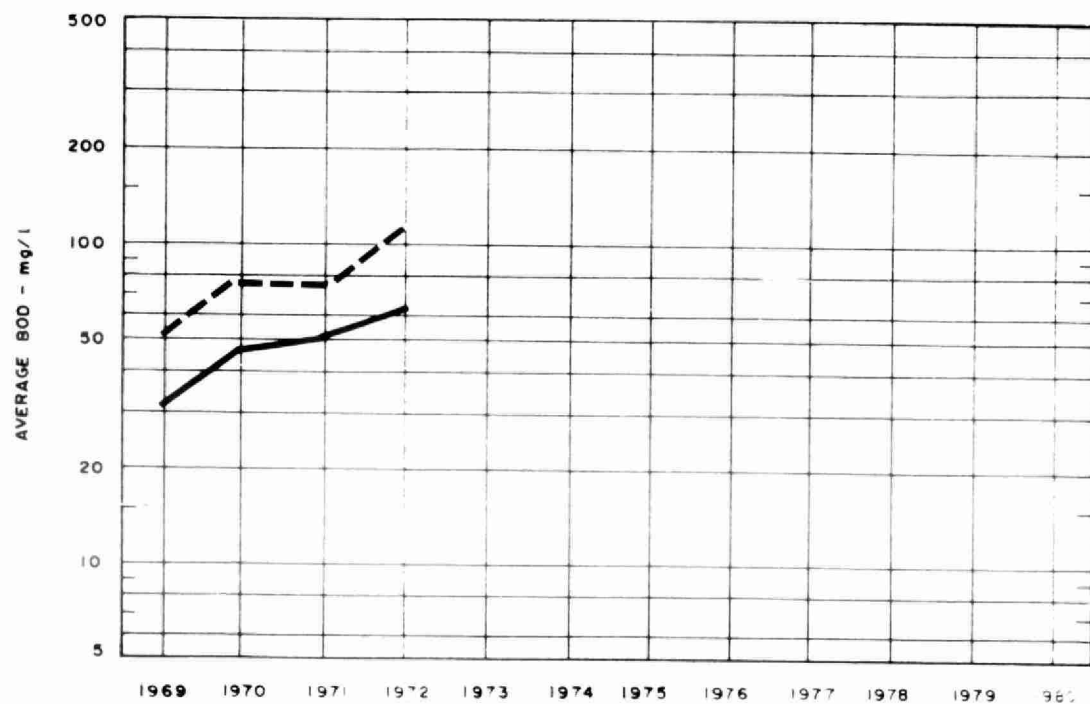
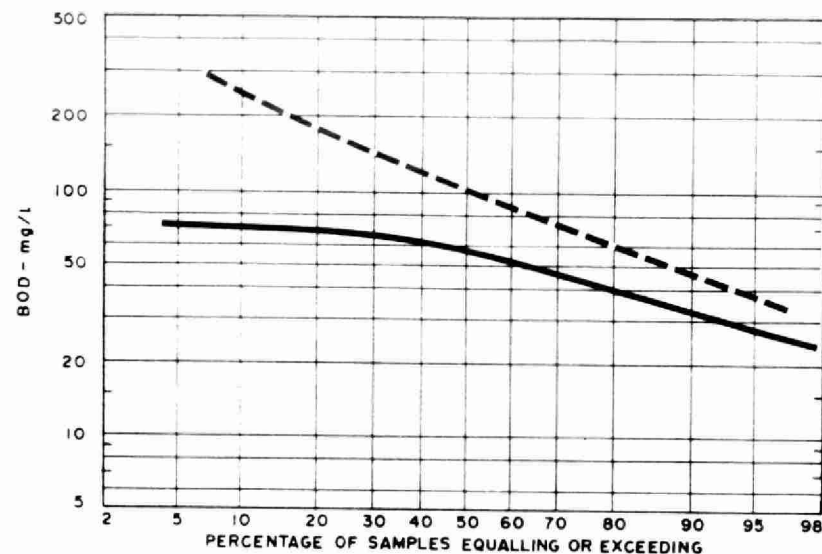


DESIGN CAPACITY - - - - -

## PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 <sup>3</sup> pounds			%	10 <sup>3</sup> pounds		
JAN	249	8.0	13.5	81	53	35	70	113	62	45	127	5.1	4.8
FEB	193	6.6	10.6	85	59	31	50	132	61	54	137		
MAR	278	9.0	18.3	94	43	54	142	194	74	62	333	7.8	
APR	476	15.9	20.5	47	43	9	19	101	83	19	86	2.6	2.4
MAY	323	10.4	16.1	46	30	35	52	256	141	45	371	4.2	4.0
JUNE	276	9.2	14.5	160	70	56	249	190	103	46	240	6.3	5.3
JULY	321	10.4	19.2					269	110	59	510		
AUG	301	9.7	16.8	80	38	53	126	268	118	56	452	5.3	5.0
SEPT	231	7.7	14.8	220	130	41	208	159	65	59	217	5.0	4.3
OCT	308	9.9	17.7	200	150	25	154	113	38	66	231	5.5	4.9
NOV	348	11.6	19.6					252	149	41	359		
DEC	297	9.6	18.9	190	150	21	119	181	107	41	220	5.0	4.7
TOTAL	3601	-	-	-	-	-		-	-	-	3283	-	-
AVG.		9.8	MAXIMUM 20.5	108	64	41	119	188	94	50	274	5.2	4.5
No. of Samples	-	-	-	20	19	-	-	67	66	-	-	11	9

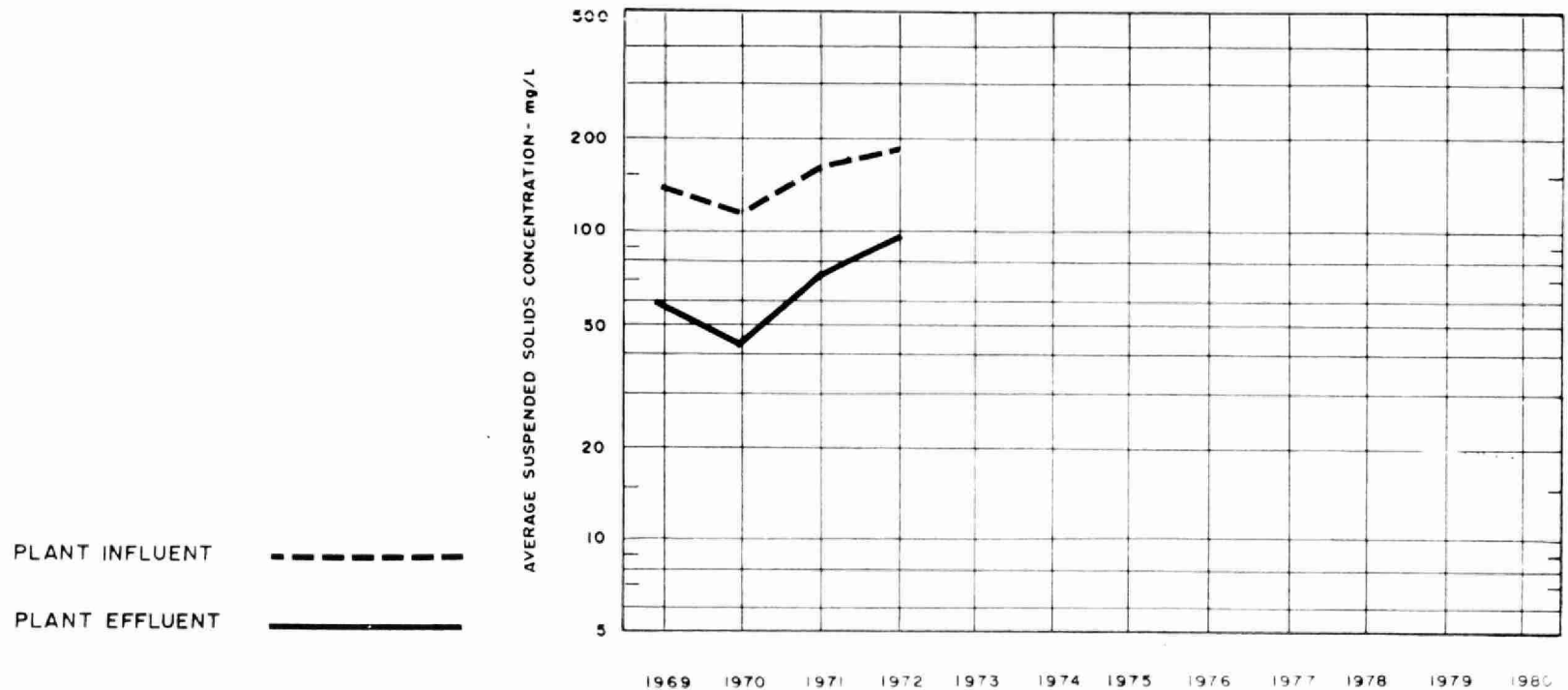
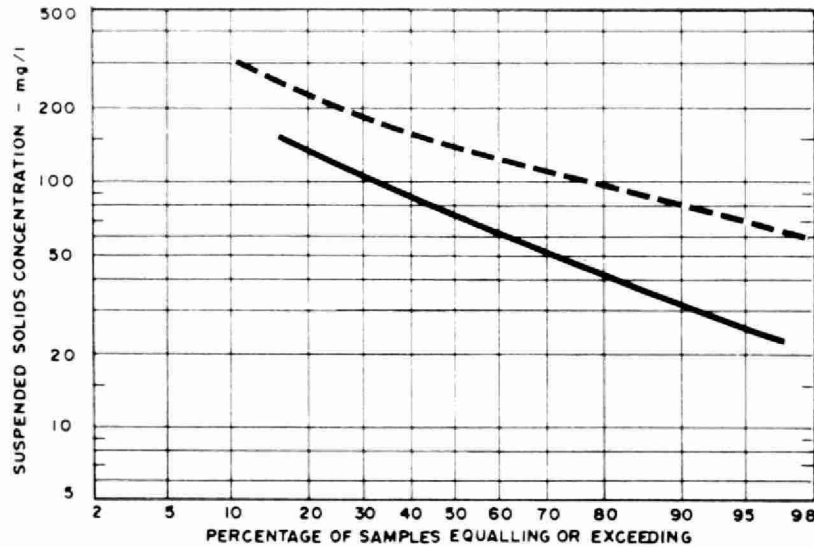
# BIOCHEMICAL OXYGEN DEMAND



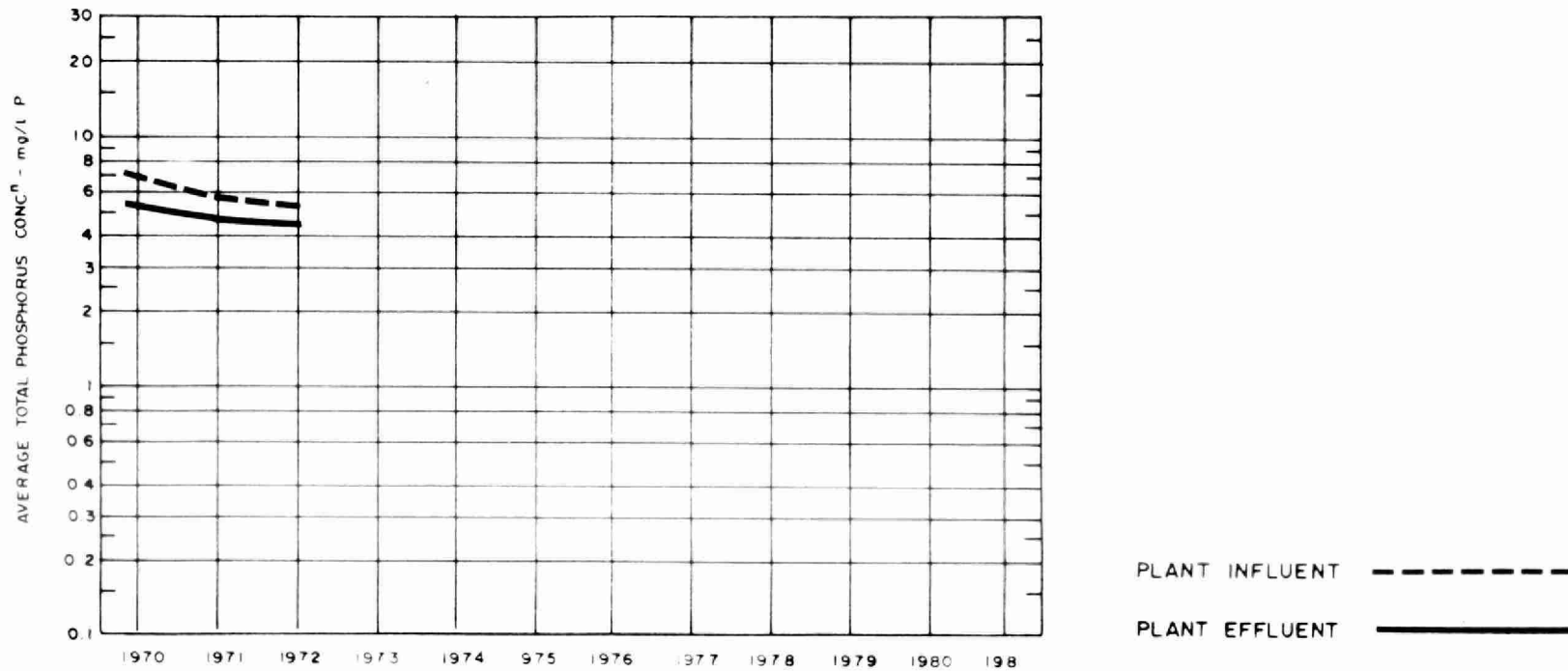
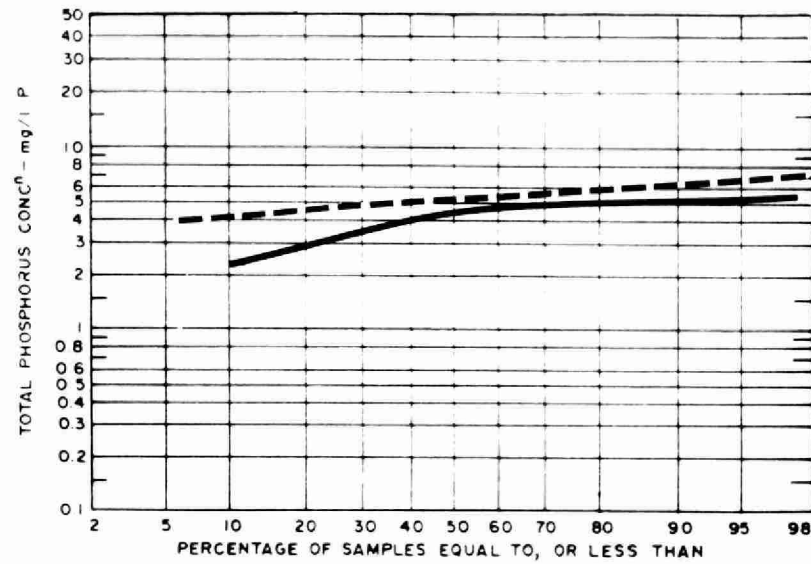
PLANT INFLUENT      - - - - -

PLANT EFFLUENT      —————

# SUSPENDED SOLIDS

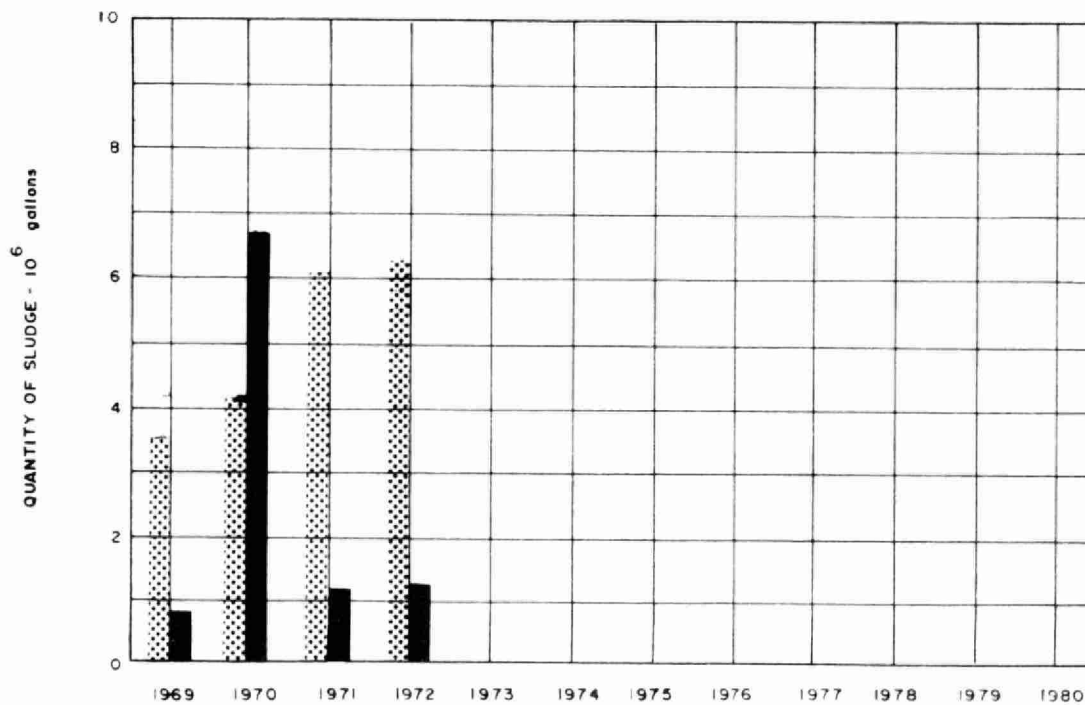
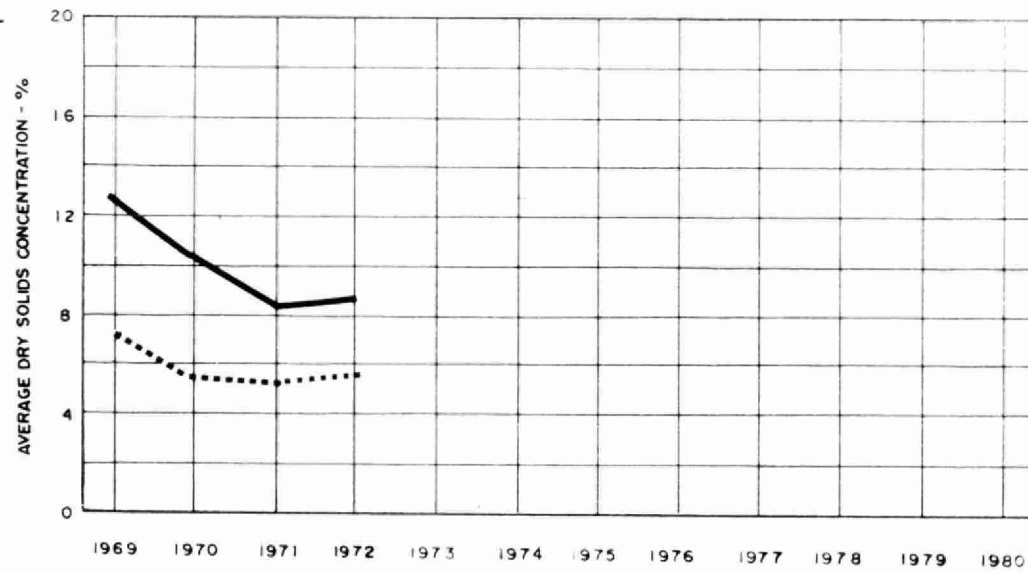


# PHOSPHORUS



# DIGESTION

RAW SLUDGE .....  
DIGESTED SLUDGE ———



RAW SLUDGE TO DIGESTER .....  
DIGESTED SLUDGE REMOVED ———

## TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 <sup>3</sup> pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	SLUDGE HAULED cubic yards
				QUANTITY 10 <sup>3</sup> gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 <sup>3</sup> gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	
JAN	189			540	5.0	60	150	7.4	46	2.0	889
FEB				400	4.7	66	90	7.0	47	1.1	525
MAR				630	4.7	64	20	9.7	43	3.8	133
APR	1323			530	6.6	46	110	10.7	37	.3	623
MAY		19	6.2	530	4.3	72	120	10.1	37	.8	693
JUNE		21	7.7	540	3.8	69	140	8.6	44	1.5	840
JULY		22	6.7	530	5.6	58	110	9.8	40	3.5	658
AUG	567	21	7.1	660	7.3	47	30	9.1	37	4.0	168
SEPT		19	8.1	490	7.4	58	170	9.0	37	2.9	1029
OCT		15	4.8	610	5.5	63	140	7.9	43	2.3	833
NOV		21	6.0	450	5.4	62	130	7.6	42		756
DEC	729	19	6.4	450	5.4	60	80	6.8			462
TOTAL	2808	157	—	6360	—	—	1290	—	—	—	7609
AVG	0.8 cubic feet/mil gal	20	6.6	530	5.5	60	108	8.6	41	2.2	634



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